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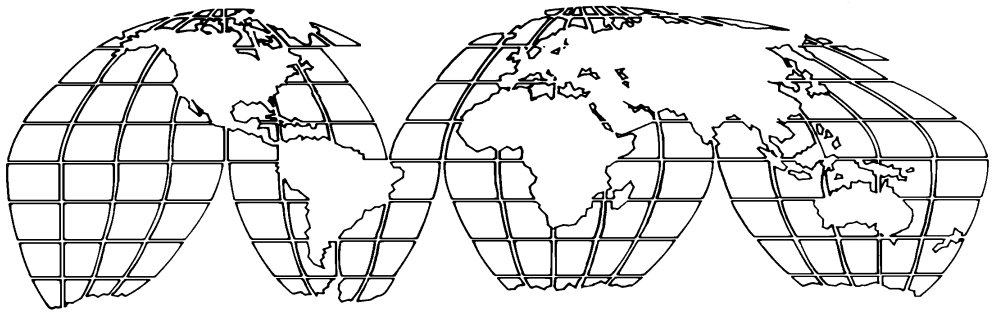
Forestry and the Environment: An Assessment of USAID Support for Forest Stewardship



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Summary

Responsible management of the world's forests, many of which are in developing countries, is critical to sustainable economic and social progress locally, nationally, and globally. Aside from providing fuelwood and timber products, forests are habitats for many biological resources, and they help modulate global climate conditions. They also serve economic development needs, providing forest products and being watersheds for farm irrigation, hydroelectric power, and urban water supplies.

Fostering sustainable local stewardship of forests is an important part of USAID's strategy to reduce threats to the global environment—in particular, climate change and loss of biological diversity. To promote local stewardship, the Agency has been funding farm and community forestry since the early 1970s.

In 1993–94 USAID's Center for Development Information and Evaluation (CDIE) conducted an extensive field evaluation of selected projects in social forestry (now more commonly called farm and community forestry) supported by the Agency in six developing countries: Costa Rica, the Gambia, Mali, Nepal, Pakistan, and the Philippines. These countries were selected for their geographical diversity and because they span a wide range of social, political, economic, and physical settings.

The assessment sought to determine how well four basic strategies have performed in promoting community stewardship of forest resources. The strategies are

- *Building institutional capacity* to promote and support local community involvement in forest stewardship
- *Introducing appropriate technologies and practices* for natural forest management and for reforestation
- *Improving education and awareness* of local groups and individuals involved in stewardship of forest resources
- *Reforming natural resource policies* to provide a legal, economic, and social environment supportive of local forest stewardship

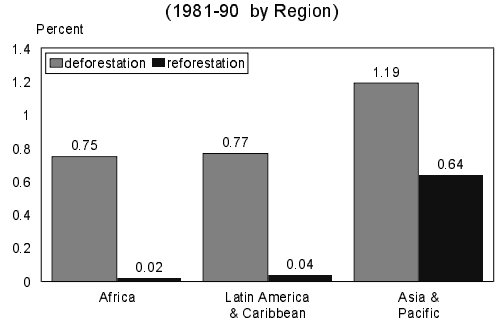
The evaluation found, among other things, that in four case study countries, USAID's efforts contributed directly to getting trees into the ground and keeping them there. The exceptions are the Gambia and Mali. There climatic conditions and government incapacity have hindered progress. Overall, the evaluators observed, local groups and communities have shown willingness and ability to manage forest resources—resources on which they depend for a livelihood—in a sustainable fashion. They found too that governments are beginning to turn to local stewardship to extend the reach of

public agencies faced with limited capacity and funds. Evaluation findings suggest, however, that the shift to local organizations requires extensive retraining and reorienting of government forestry staff to promote social forestry rather than police encroachments on the forests.

Background

A recent UN study found that the area of tropical forest decreased by an average of 0.8 percent a year from 1980 through 1990. In real terms, that represented a decline to 6,795,500 square miles from 7,374,500 square miles. As of 1990, the area of tropical forest established each year (6,950 square miles) came to only 12 percent of the area deforested. Globally, forest establishment lags behind deforestation. Figure 1 reflects this imbalance in the Africa, Latin America, and Asia regions where USAID has undertaken programs to arrest this trend.

Figure 1. Annual Deforestation and Reforestation Rates (1981-90 by Region)



Source: FAO, 1993. Forest Resources Assessment 1990

The case study countries reflect this trend. In each country, natural-forest cover has been declining. Decreases are mainly in tropical rain forest in the Philippines; hill and montane forest in Costa Rica, Nepal, and Pakistan; moist deciduous forest in the Gambia; and a mix of dry deciduous and very dry forest in Mali. Because tree planting has not kept pace with population growth, each case country exhibits declining wood production.

Increasingly, development assistance for forest management emphasizes local self-help approaches. A realistic examination of the tasks at hand shows that governments seldom have the budgets and managerial expertise to oversee a country's total forest resources. Instead, they are being pressed to devolve greater control of trees and forests to local stewards.

Worldwide, most externally funded efforts in farm and community forestry have a history of less than 15 years. Few projects have been in place long enough to complete a full cycle of activities. Yet experience has been accumulating rapidly, and USAID is now well positioned to evaluate a number of these activities.

USAID's Assistance Approach

As a group, the six case study projects have explicit objectives of increasing local involvement in sustainable management and use of forests by introducing or strengthening national farm- and community-forestry programs. Following are descriptions of each project:

Costa Rica. USAID is supporting an integrated area conservation program aimed at protecting the country's biological resources from further destruction by inappropriate farming, ranching, and logging practices. Through the $7.5 million Forest Resources for a Stable Environment project (1990–96) and a $10 million local-currency endowment fund created by a debt-for-nature swap, the Agency is supporting Costa Rican Government efforts to set aside and manage protected forest habitats in the country's central cordillera volcanic region. USAID provides technical assistance and funds (through the endowment) for operation of a nongovernmental regional development foundation. It was created to support the Ministry of Natural Resources in promoting reforestation and natural forest management schemes on lands bordering national parks.

The Gambia's forest cover has been substantially depleted by agriculture. Dependency on firewood as the main source of fuel, combined with poorly distributed rainfall and uncontrollable fires, has led to unsustainable use of remaining forests. Through the $1.6 million Gambia Forestry project (1979–86), USAID helped the government move toward sustainable forest-based fuelwood supplies by promoting large-scale plantations and community woodlots. The Agency also introduced more energy-

efficient wood stoves and less wasteful sawmill technologies.

Mali. Increasing pressures from human and livestock populations in the fertile Mopti region along the Niger River have led to losses in tree cover that forests can no longer offset. Declining rainfall and desertification have placed further stresses on forest systems. Through the $2.8 million Village Reforestation project (1983–92), private voluntary organizations (PVOs), and several regional programs, USAID has helped the Malian Government and local groups introduce forestry and other natural resource management. The Agency has also contributed to an ongoing participatory process of revising the forestry code. In addition, USAID funds were directed toward introducing a mix of tree and crop cultivation technologies.

Nepal. Population growth and lack of alternatives to subsistence agriculture have led to degradation of public forestlands, placing increased hardships on local users of forest products. Since the early 1980s, USAID has channeled assistance through a $41.2 million portfolio of projects. The projects support Nepal's efforts to foster forest management by user groups through developing and testing local forest management schemes, encouraging policy reforms for community forest management, and strengthening public and nongovernmental institutions in support of community forestry.

Pakistan. Removal of trees for fuelwood and construction is outstripping the pace at which public forests replenish themselves. Losses of forest wildlife habitats are increasing. Flooding, destruction of infrastructure, and deteriorating supplies of potable water from Pakistan's disappearing watersheds are further environmental damages from deforestation. Through a $27.5 million Forestry Planning and Development project (1984–93), USAID supported creation of a social forestry program within Pakistan's Forest Service. It aimed to convert the Forest Service from *policing* forests to *promoting* tree farming. The project also helped develop markets for tree seedlings, custom tree harvesting, and other inputs and services needed to support private tree farming and reform policies restricting timber commerce within the country.

The Philippines is rapidly losing its remaining forests. Government agencies have limited capability to police tree harvesting on public lands. Forest loss is accompanied by loss of wildlife habitats, destruction of watersheds, flash flooding, and decline of surface water and groundwater. Through the $11.1 million natural resources component of the Rain-fed Resources Development project (1982–91), evaluated here, and more recently a $100 million Natural Resources Management project, USAID and the Philippine Government have supported introduction of incentives for long-term stewardship of public forestlands. By issuing so-called certificates of stewardship contracts to upland households and local groups, the government has sought to mobilize local energies for reforestation and forest management.

Findings

The evaluation team explored the programs' effect in three areas: 1) impact on practices, 2) impact on the biophysical environment, and 3) impact on socioeconomic conditions. It also examined the programs' efficiency and effectiveness, sustainability and replicability.

Impact on Practices

Participants in farm- and community-forestry programs were most disposed to adopt new practices when they had a say in the choice of forestry activities and techniques. Where projects promoted a "cookbook" approach to tree planting, they encountered the least receptivity to adoption. At the outset of social forestry programs in the Gambia, Mali, and the Philippines, project implementers attempted to introduce practices and technologies through cookbook tree-planting and management rules. Project staff later recognized that adoption accelerated when participants were given more freedom to adapt practices to their own concepts of what should be done.

Opportunities for local control over land and tree use have encouraged more responsible forest management. Fear of loss of control over land once trees are planted on it was a common obstacle to promoting social forestry in all countries. Several years are required to build participant confidence that they can control trees for which they are responsible.

Willingness to take an active role emerged only when there was clear understanding of

costs and benefits of participation for individuals. Group management of forests has worked best when all agree about sharing program costs (as of land, labor, and funds) and benefits (products and income from harvests, contracts, and the like). Failure to recognize how costs and benefits will be shared lowers program performance (see box).

Biophysical Impact

USAID has contributed directly to getting trees into the ground and keeping them there. Newly forested areas now stand at several project sites in Costa Rica, Nepal, Pakistan, and the Philippines. Less evidence of biophysical changes exists at USAID project sites in the Gambia and Mali.

In the Gambia, a Lack of Vision

The Gambia Forestry Project implicitly assumed that "the community" would work to establish and maintain woodlots, and then "everyone" would benefit during the course of thinning, pruning, and harvesting. In practice, the experience was different.

Harvests from woodlots are not always easily divisible, nor are they necessarily timed in relation to when community members need or desire specific products. Women cannot simply collect wood when they need it, nor can someone cut poles for construction, without raising the question of whether benefits are distributed "fairly."

Sticks and small branches collected during maintenance are meager compensation for the work, and even these benefits are difficult to distribute equitably. In several cases, respondents stated that the wood generated from these activities was left for those who wanted it, suggesting the benefits were insignificant.

Communities face further problems in allocating benefits when the trees become large enough to yield poles, large branches, and logs. At this point there is a greater sense of economic value to be gained. Some communities have insisted that woodlots belong to everyone, and nothing is harvested unless all will benefit. One solution would be to sell all wood harvested and deposit the receipts in a community fund. Another option is to divide the harvest among households.

The lesson from the Gambia is that activity should not begin before a community has a clear vision and explicit agreement on how expected benefits will be allocated.

USAID support for farm and community forestry for fuelwood and construction timber has reduced pressures on natural forest cover to the extent that demand has been met from alternative production. In Pakistan, for example, a hundred million trees planted on an estimated 154,000 square miles have begun to meet a share of demand for fuelwood and construction timber that otherwise would have been harvested from natural forests and scrubland.

In Costa Rica, adverse effects from tree harvesting have been reduced by promoting selective tree harvesting and careful logging practices. Roads built according to project specifications showed fewer signs of actual and potential erosion. Particularly noteworthy was the reduced impact of tractors removing logs.

Farm and community forestry has contributed to improved soil and cropping conditions. Social forestry has combined tree planting with soil conservation at several sites in Nepal, Pakistan, and the Philippines. In Pakistan, saline and waterlogged soils are being reclaimed by planting eucalyptus, a thirsty, salt-absorbing evergreen. Such soil conditions are common in Pakistan, and areas where they occur can benefit from eucalyptus growth. The potential contribution to the environment is unmeasured but can be considered important. In the Philippines, one farmer reported his measure of improvement was the number of days in the year during which he could bathe his water buffalo in the stream adjacent to his fields. The measure had doubled, he felt, as a result of more tree cover in the project area.

Socioeconomic Impact

Farm and community forestry has generally proven competitive with domestic food crops and has widened the scope for new private enterprises. In Pakistan, for example, evaluators estimated that USAID's support for farm forestry has an economic rate of return of about 60 percent and a benefit–cost ratio of 2:1. This compares favorably with traditional rain-fed wheat cultivation. (Strong market demand for wood products in Pakistan, however, accounts largely for the high returns. Extensive practice of farm forestry would lower prices, bringing rates of return more in line with those of other cash crops.)

At some Philippine project sites, forest-products enterprises (rattan furniture, construction wood) are emerging. Stands of planted trees—though not always well managed—are evidence that households find forest management a worthwhile investment of their land and labor. Local forest user groups are concerned about getting more seedlings and technical support—further evidence of perceived local benefits from investments in social forestry.

In the Gambia, by contrast, technologies introduced with USAID support failed to improve socioeconomic well-being significantly. Project designers chose the deciduous gmelina as the primary tree for project woodlots and plantations. But optimistic assumptions about seedling survival, growth rates, and local demand proved false in practice. Few if any Gambian community woodlots attained the level of sustained production anticipated by the project. In most cases, the trees failed to survive the early years when drought wracked the country.

Farm and community forestry has had a positive effect on women's roles. Women have the major responsibility for activities directly related to food processing and preparation. This often includes harvesting fuelwood for cooking and fodder for livestock. Deforestation can increase the time women must spend to collect fuelwood and fodder and thus decrease the time they devote to child care, food preparation, and agricultural production.

Four of the projects in farm and community forestry show evidence of generating new income-earning opportunities for women. In Costa Rica, Mali, and Nepal, women found employment in nurseries and in planting tree seedlings. In Pakistan cultural barriers appeared to limit the role of women in most forestry activities. However, a program set up under the USAID project to train women forestry extension workers promises to broaden women's income-earning activities.

Formation of forest user groups has strengthened democratic institutions through empowerment of rural residents, including women. A democratic society is based not only on free parliamentary elections but also on strong local institutions that embody concepts of equality and fairness. Forest user groups are one such emerging institution. Empowerment of forest user groups has increased government responsiveness to local needs and interests. In Nepal, Pakistan, and the Philippines, these groups have begun exercising political power. Nepalese groups, for example, have banded together to form regional associations. They are petitioning the government for a policy change allowing them to engage in a broader spectrum of forestry activities such as sawmill operations.

Program Efficiency and Effectiveness

Investments in farm and community programs are expected to produce both direct private benefits (for example, household income from forest products) and indirect public benefits (improved watershed quality, reduced damage from flooding and siltation of irrigation and hydropower reservoirs). The time period is too extended and the variables are too numerous and too difficult to measure for any meaningful analysis of these benefits in relation to costs for the programs evaluated here. It is safe to say, though, that the number of people involved in social forestry must expand considerably from levels now reached at the conclusion of most projects. Otherwise, total net returns of participating households and communities will fail to approach the amount of USAID and other public investments.

What USAID projects do contribute are insights into how to reorient government programs and policies in support of farm and community forestry. Noteworthy are two approaches employed to transfer skills: contractual commitments between forest users and government agencies, and farmer-to-farmer or user-to-user training.

Contract forestry has proven effective at fostering environmentally responsive skills in forest management. Among the more innovative approaches to emerge in USAID support for social forestry are government forest management agreements with local individuals and groups. Contractual arrangements have generally been of two types: contracts specifying how forest management and tree-planting or logging activities will take place on privately owned land (Costa Rica, Pakistan) and agreements that define methods and periods of stewardship by individuals or groups for forested public or common lands (the Gambia, Mali, Nepal, the Philippines).

In Costa Rica, project contractual agreements call for tree harvesting in natural forests to follow strict environmental practices. USAID's project offered training and guidance to help landowners and loggers comply with these requirements. Penalties for noncompliance (such as fines and disqualification from future work) were used to promote new practices. Such measures demand intensive management and oversight of contract performance, something many NGOs and government agencies have insufficient staff to provide. This circumstance does raise questions about the feasibility of using contract compliance to foster better practices when participation rates increase substantially.

Agreements of the second type are "social contracts" between governments and local communities. These pacts provide for long-run stewardship, or management, of forests on public or common lands. The agreements emerged during the last two decades from recognition that national forestry agencies lacked the capability and were not proving effective at enforcing protection of forested areas. The Philippines provides a good example of social contracts. Local groups and individuals receive "certificates of stewardship" from the Department of Environmental and Natural Resources. The certificates allow access to public forests for periods up to 25 years if agreed-on management and use practices are followed.

Farmer-to-farmer training is a cost-effective way to disseminate technology and skills. Transferring skills and encouraging new practices has not always worked well when provided by government agencies. Techniques are often too theoretical. Instead, farmers pick up knowledge from other farmers by "peering over the fence" and by more structured "field days." The Philippines gave farmer-to-farmer training the most central role. Pakistan and Nepal began toward the end of the projects to pursue the same approach. By contrast, neither in the Gambia nor in Mali did centrist top-down programs give more than occasional recognition to the possibility of farmers' playing a role in testing and sharing forestry techniques.

One limiting factor in Pakistan was the distribution of participants, skewed toward large farmers who had more time and resources to tinker with forestry technologies. In the Philippines, the project was more effective at reaching lower income forest users. There, project sites were on public upland areas. All participants were, in a sense, squatters, though many had lived there for more than a generation.

Program Sustainability and Replicability

USAID's efforts in farm and community forestry show that local stewardship of forests can be financially viable over the long run. In Pakistan the greatest sign of financial viability is a mushrooming demand for tree seedlings, seen toward the end of the project. Farmers found new sources of income just selling tree seed or setting up nurseries of their own in the shade of their more mature trees. In the Philippines, participants at several community forestry sites began to branch out into other activities that produced income while trees were maturing. In Nepal, user groups are earning money from their community forests and using proceeds for community welfare development projects. Their rights to harvest and sell products from the forest have been strengthened in new forestry legislation.

Markets have not been well addressed in the farm and community forestry projects evaluated. Projects in Costa Rica and Pakistan encouraged landowners to invest in tree planting and management. But they did little by way of studying timber and fuelwood markets or developing market strategies. Apparently, project designers were convinced that future timber and fuelwood shortages would be so great in these countries that it would be easy to place trees in the domestic market when they were ready for harvest. These forecasts may indeed come about. But without a more systematic and thorough analysis of domestic and international markets, it will be hard to justify local or outside investment to continue and expand social forestry programs.

Local forest stewardship spreads best when it is linked directly to livelihood activities that produce economic benefits. Evidence suggests that most individuals and groups engaged in farm and community forestry use more than one resource management technique. Such variety creates synergies. The more sustainable of USAID's recent forestry interventions have

combined forest management and sustainable agriculture to enhance return to labor. Return is measured in jobs, income, and food security—not just access to timber products. In contrast, programs with single goals—say, village woodlots for fuelwood alone—have proven neither profitable nor sustainable.

Use of subsidies to encourage farm and community forestry has a mixed effect on sustainability and spread. All the projects evaluated provided subsidized tree seedlings. The evaluation found evidence that the total subsidy burden and the costs of sustaining the supply of tree seedlings grew as the number of project participants increased. Evidence also surfaced that subsidies discouraged expansion of private tree nurseries beyond those supported by the project. New nursery operators simply could not compete with seedlings sold at subsidized prices or distributed without cost. A major issue has been deciding when to continue distributing subsidized seedlings to attract low-income and small-farmer participants as an equity measure. The reverse side of that is deciding when to end subsidies to improve the climate for private nurseries as a measure to increase project efficiency.

Several programs introduced tree species and forestry practices without the designers' having much technical knowledge about their biological soundness. Choices and subsequent evolutions in project technologies require frameworks of planning, monitoring, and research. The evaluators found that only some of the projects developed such frameworks. Efforts along these lines have been negligible in the Gambia and the Philippines. Elsewhere they have been generally incomplete.

In Costa Rica, for example, viability of the reforestation program depends on assumptions about the performance of native tree species in plantations. For the moment, risk to the landowner is reduced by subsidies and a shortage of alternative sustainable land uses. In the long run, though, foresters have yet to show that native tree species can be adapted to plantation systems.

In the Gambia, as noted, the tree-growing technology was flawed. The project had virtually no success.

Emergence of user groups with authority to manage their own forests has enhanced sustainability of farm and community forestry. Through legislative and policy reforms, responsibility for forest management has begun to devolve from central government agencies to local user groups in varying degrees in each of the study countries. In practice, the actual acreage of trees turned over to local management in most cases remains low. Spread and sustainability, nevertheless, appear to correlate closely with the capacity of local groups.

Farm and community forestry is now firmly rooted in the institutional structures of public agencies in several of the study countries. Newly created social forestry branches of government agencies in Mali, Nepal, Pakistan, and the Philippines are still weak and struggling. Nevertheless, they have a much greater chance of survival today thanks to assistance from USAID programs. Key achievements are legislative reforms for local forest stewardship (Mali, Nepal, the Philippines), demonstrated effectiveness of these programs (Nepal, Pakistan, the Philippines), and setting up endowed environmental funds to sustain activities (Costa Rica, the Philippines).

Recommendations

Several recommendations for enhancing performance of USAID farm and community forestry programs emerge from the evaluation:

Adopt farm- or community-forestry interventions appropriate to each local and national setting. As in all development assistance, strategies in farm and community forestry must correspond to social, political, and economic development. Education and awareness, basic organizational development, and elementary tree-planting experiments may be the most appropriate activities in settings where literacy is low and technology scarce. Countries that have passed through early development stages may be positioned—with project support—to tackle tenure and market reforms and other issues of a complex institutional character.

Budget sufficient time and resources to introduce farm and community forestry, particularly when institutional capacity needs building and natural resource policies need reform. Social forestry programs require considerable effort over a period of years to set up new government structures, erode bureaucratic resistance, test technical approaches, organize existing (or

form new) local groups, and overcome skepticism among farmers and communities. Project designers should consider quality over quantity of resources. Resources more carefully used over a longer period of time may be more effective at changing government attitudes and public policies than a large splash of resources budgeted once to "buy" reform without follow-up support and monitoring. Where farm and community forestry has taken root, experience suggests that continued donor involvement may be warranted until an enabling policy environment is in place and local groups have built needed financial, technical, and administrative capacity for self-reliant operations.

Foster government partnerships with local communities and NGOs to help public agencies extend the reach of farm- and community-forestry programs. USAID should support partnerships between government forestry agencies, local communities, and national and international environmental NGOs to mobilize complementary talent and funding. The Agency should take care to identify and involve NGOs with needed skills in community organization, financial management, and forest management techniques. In this regard, one promising approach is the use of forest stewardship contracts and resource management agreements between government agencies and local communities, NGOs, and individual land owners.

Structure programs in farm and community forestry so they allocate costs and benefits in a balanced way among participants and over time. Private ventures in sustainable forest use offer scope for generating early benefits for local participants. Forests offer investment opportunities for local enterprises in timber products, of course, but also in such ventures as sustainable timber (lumber, fuelwood, charcoal, pulpwood) and nontimber products (nuts, honey, rattan, tree and plant nurseries). USAID also can foster service enterprises in reforestation, restoration and management of remaining old-growth forests, and operation of tourist concessions in and around forest parks. Such ventures enhance public awareness of the economic value of forest resources and generate immediate incomes for local communities.

Support reform of natural resource policies that cause forest loss. USAID can enhance the effectiveness and accelerate the spread of farm and community forestry by identifying for reform regulatory, tenurial, and subsidy policies that promote conversion of forests to other, often unsustainable, uses or impose barriers to local management of forest-based enterprises. For example, restrictive government controls over treed land may be well meaning in their effort to halt forest loss, but they also discourage investments in tree planting by owners concerned about losing control over use of their land.

Allocate more resources to measuring and monitoring the performance and impact of farm and community forestry. Social forestry programs do not produce tangible results for several years. Programs need to measure benchmarks and monitor change to determine if adjustments are needed. Environmentalists and policymakers require answers to questions on water regimes, soil effects, energy substitutions, and the like, in relation to tree and forest management. This need is particularly great if native tree species, about which little may be known, are introduced.

Coordinate USAID program resources to ensure effectiveness of Agency efforts at fostering forest stewardship. USAID can use its forestry program funds most effectively when they are coordinated with other Agency programs. For example, USAID microenterprise programs can finance forestry ventures; agriculture and agribusiness programs can generate ventures in tree and nontimber products as alternatives to forest destruction; and policy reforms can remove market distortions that undervalue forests and lead to their conversion.

This Evaluation Highlights, *by Phillip Church of USAID's Center for Development Information and Evaluation, summarizes the findings of the study* Forestry and the Environment: An Assessment of USAID Support for Forest Stewardship, *USAID Program and Operations Assessment Report No. 14, by Phillip Church, CDIE, and Jan Laarman of North Carolina State University. The report can be ordered from the DISC, 1611 N. Kent Street, Suite 200, Arlington, VA 22209–2111; telephone (703) 351–4006; fax (703) 351–4039; Internet docorder@disc.mhs.compuserve.com. It is also available electronically without charts and graphs, from the Internet, at gopher.info.usaid.gov. Look under Documents and Publications, then under USAID Newsletters. Editorial and production services provided by Conwal, Inc.*